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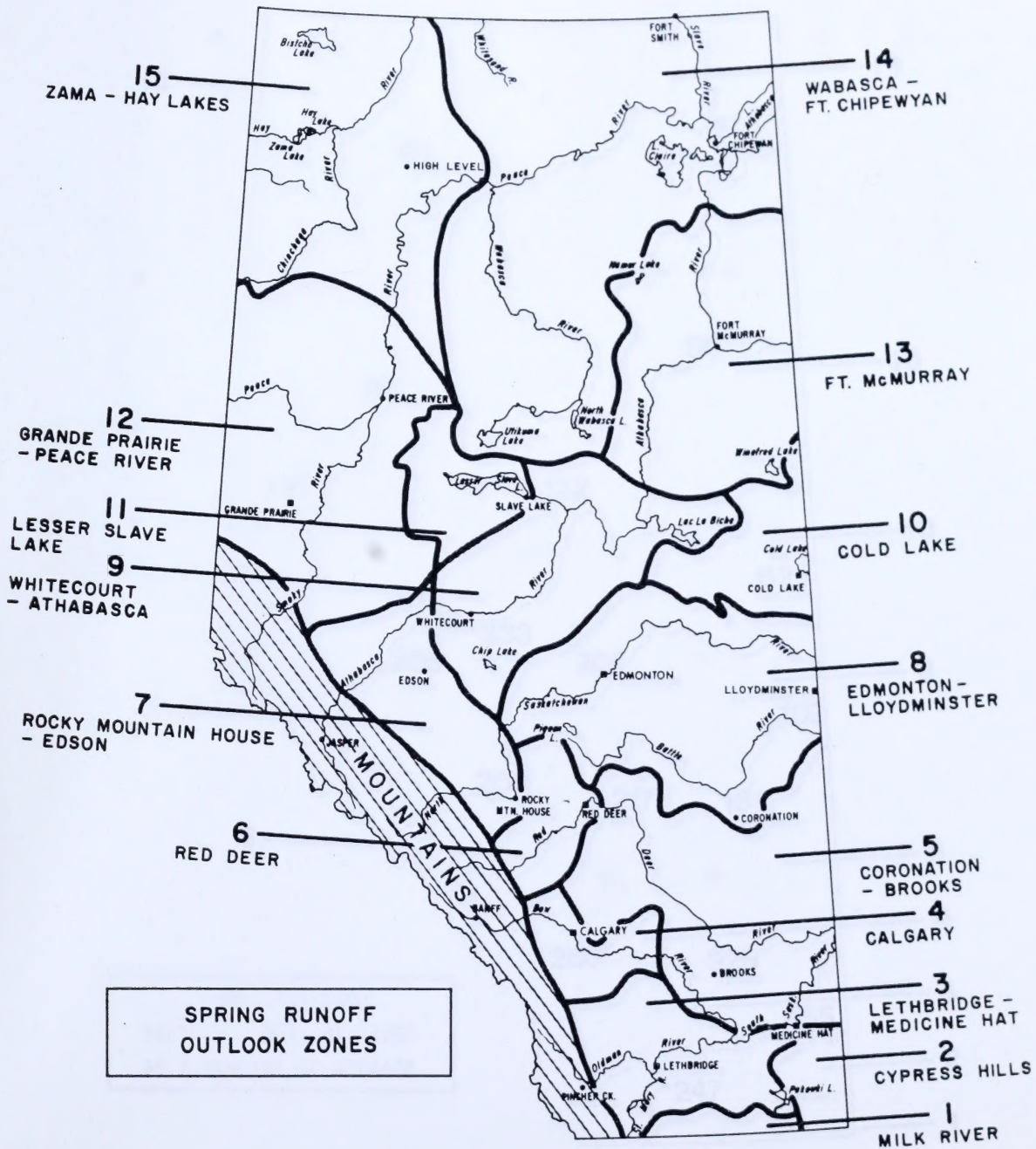
FEB 23 1987

# SPRING RUNOFF OUTLOOK

FEBRUARY 1987

prepared by  
the RIVER FORECAST CENTRE  
and  
the SURVEY BRANCH  
TECHNICAL SERVICES DIVISION  
WATER RESOURCES MANAGEMENT SERVICES  
ALBERTA ENVIRONMENT









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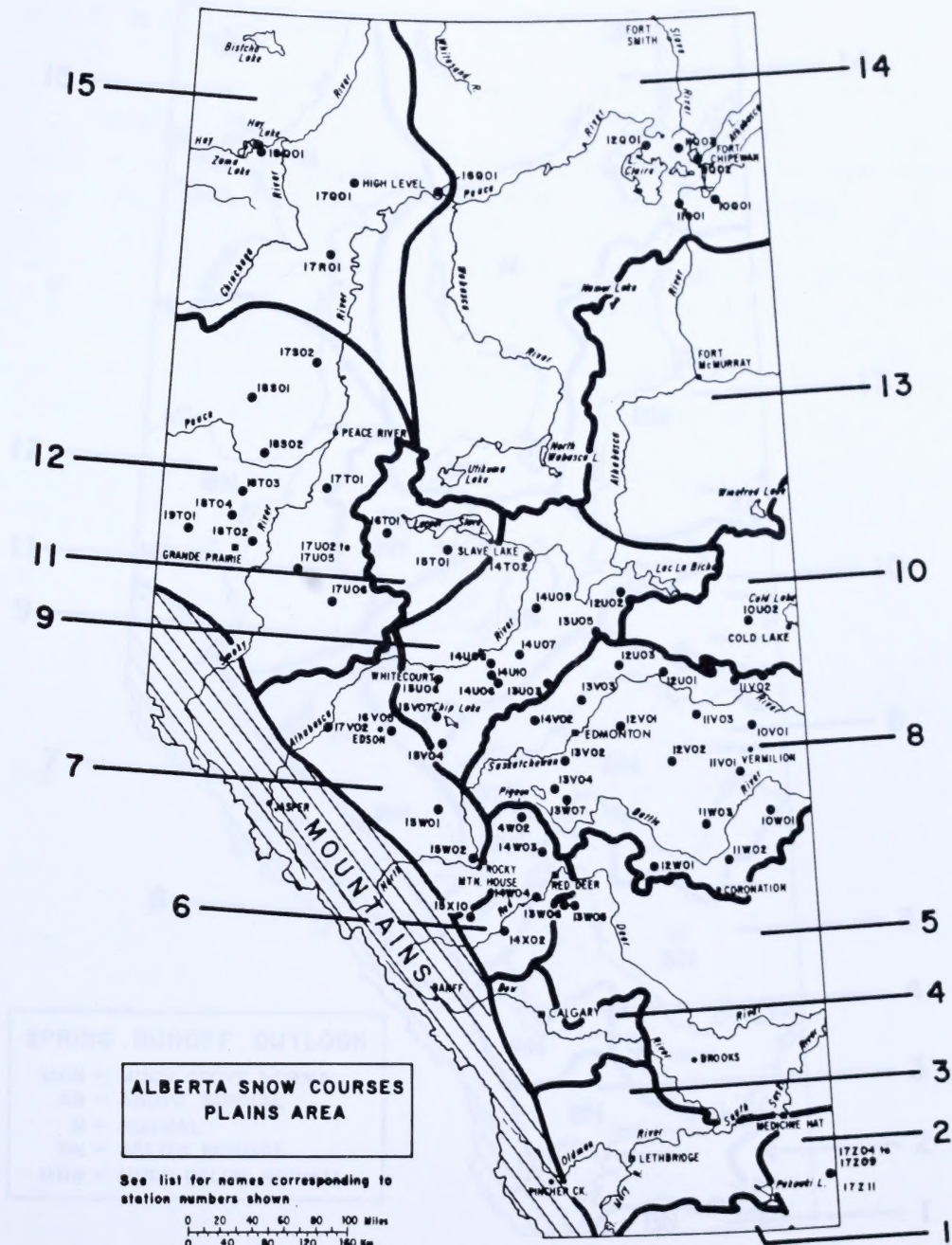




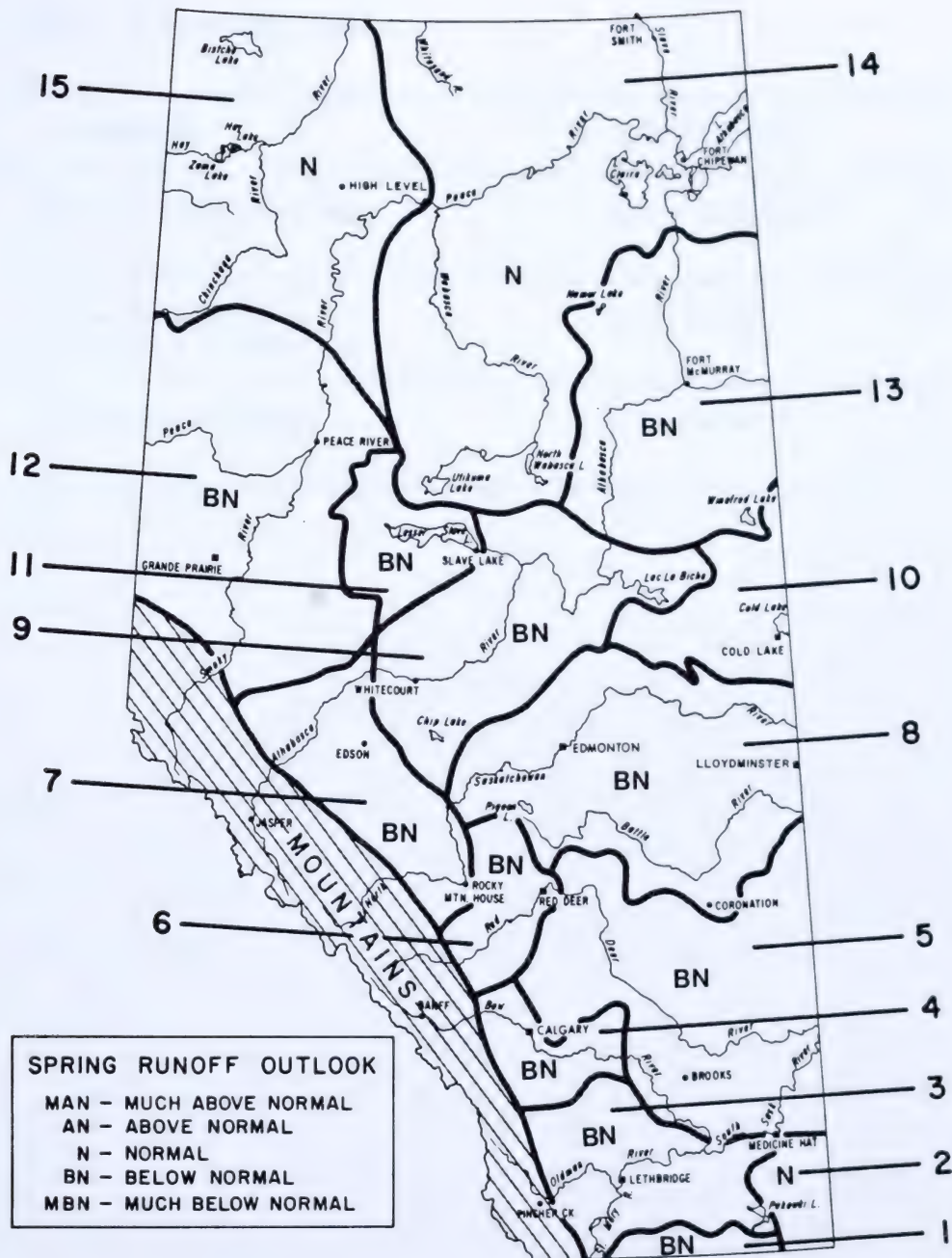
















## ZONE 1 - MILK RIVER AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |





## SPRING RUNOFF OUTLOOK

FEBRUARY 1987

## ZONE 2 - CYPRESS HILLS AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Normal             |

## SNOW SURVEY DATA

| Station Name                    | Date<br>of<br>Mmnt.<br>mm-dd | Snow<br>Depth<br>1987<br>(cm) | Water<br>Equiv.<br>1987<br>(mm) | Density<br>1987<br>% | Water<br>Equiv.<br>1986<br>(mm) | Average<br>Wat.Eq.<br>(mm) | Years<br>of<br>data | 1987<br>Water<br>Equiv.<br>%Avg. |
|---------------------------------|------------------------------|-------------------------------|---------------------------------|----------------------|---------------------------------|----------------------------|---------------------|----------------------------------|
| Gros Ventre Middle<br>(10Z04)   | 01-23                        | 38                            | 84                              | 22                   | 61                              | 47                         | 6                   | 179                              |
| Gros Ventre Upper<br>(10Z05)    | 01-22                        | 21                            | 43                              | 20                   | 36                              | 60                         | 5                   | 72                               |
| Mitchell Creek Lower<br>(10Z06) | 01-23                        | 35                            | 89                              | 25                   | 74                              | 70                         | 5                   | 127                              |
| Mitchell Creek Upper<br>(10Z07) | 01-22                        | 37                            | 94                              | 25                   | 91                              | 81                         | 5                   | 116                              |
| Ross Creek Lower<br>(10Z08)     | 01-23                        | 36                            | 71                              | 20                   | 71                              | 64                         | 6                   | 111                              |
| Ross Creek Upper<br>(10Z09)     | 01-22                        | 36                            | 89                              | 25                   | 102                             | 83                         | 4                   | 107                              |
| Thelma Creek<br>(10Z11)         | 01-22                        | 0                             | 0                               | 0                    | 0                               | 0                          | 3                   | 0                                |



## ZONE 3 - LETHBRIDGE - MEDICINE HAT AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |

## ZONE 4 - CALGARY AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |





## SPRING RUNOFF OUTLOOK

FEBRUARY 1987

## ZONE 5 - CORONATION - BROOKS AREA (SPECIAL AREAS)

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |

## ZONE 6 - RED DEER AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |





## ZONE 7 - ROCKY MOUNTAIN HOUSE - EDSON AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |

## ZONE 8 - EDMONTON - LLOYDMINSTER AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |



## ZONE 9 - WHITECOURT - ATHABASCA AREA

| PARAMETER   | CLASSIFICATION     |
|---|--------------------|
| Soil Moisture Conditions                          | Wetter than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal       |
| Spring Runoff Outlook                             | Below Normal       |

## ZONE 10 - COLD LAKE AREA

| PARAMETER   | CLASSIFICATION    |
|---|-------------------|
| Soil Moisture Conditions                          | Drier than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal      |
| Spring Runoff Outlook                             | Below Normal      |





## ZONE 11 - LESSER SLAVE LAKE AREA

| PARAMETER   | CLASSIFICATION |
|---|----------------|
| Soil Moisture Conditions                          | Normal         |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal   |
| Spring Runoff Outlook                             | Below Normal   |

## ZONE 12 - GRANDE PRAIRIE - PEACE RIVER AREA

| PARAMETER   | CLASSIFICATION |
|---|----------------|
| Soil Moisture Conditions                          | Normal         |
| Winter Precipitation<br>(November 1 - January 31) | Below Normal   |
| Spring Runoff Outlook                             | Below Normal   |



## ZONE 13 - FORT McMURRAY AREA

| PARAMETER   | CLASSIFICATION    |
|---|-------------------|
| Soil Moisture Conditions                          | Drier than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Normal            |
| Spring Runoff Outlook                             | Below Normal      |

## ZONE 14 - WABASCA - FORT CHIPEWYAN AREA

| PARAMETER   | CLASSIFICATION    |
|---|-------------------|
| Soil Moisture Conditions                          | Drier than Normal |
| Winter Precipitation<br>(November 1 - January 31) | Normal            |
| Spring Runoff Outlook                             | Normal            |





## ZONE 15 - ZAMA - HAY LAKES AREA

| PARAMETER   | CLASSIFICATION |
|---|----------------|
| Soil Moisture Conditions                          | Normal         |
| Winter Precipitation<br>(November 1 - January 31) | Normal         |
| Spring Runoff Outlook                             | Normal         |



# SPRING RUNOFF OUTLOOK

MARCH 1987

CANADIANA

MAR 16 1987

prepared by  
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WATER RESOURCES MANAGEMENT SERVICES  
ALBERTA ENVIRONMENT

# Mathematical Analysis

Chapter 1

Section 1.1

Example 1.1

Example 1.2

Example 1.3

Example 1.4

Example 1.5

Example 1.6







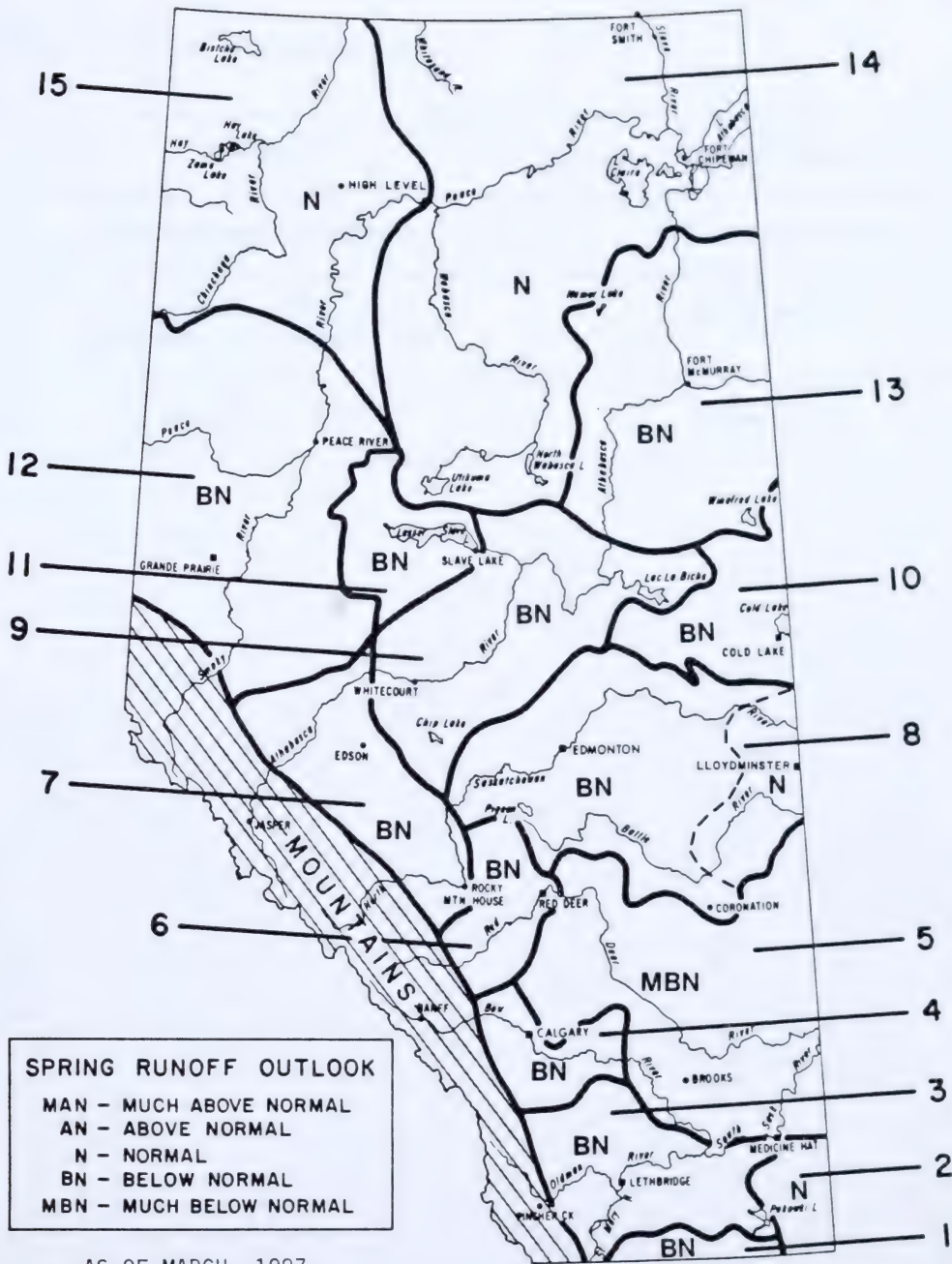














## SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 1 - MILK RIVER AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |



SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 2 - CYPRESS HILLS AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than normal |
| Winter Precipitation<br>(November 1 - February 28) | Normal             |
| Spring Runoff Outlook                              | Normal             |

SNOW SURVEY DATA

| Station Name         | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |    |     | Total<br>Years<br>of<br>Record |
|----------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|----|-----|--------------------------------|
|                      |              |                         |                            | 1987                  | 1986 | Prior to 1987 |    |     |                                |
|                      |              | Max.                    | Min.                       |                       |      | Avg.          |    |     |                                |
| Gros Ventre Middle   | 10Z04        | 02-17                   | 41                         | 114                   | 84   | 114           | 31 | 77  | 6                              |
| Gros Ventre Upper    | 10Z05        | 02-16                   | 18                         | 48                    | 66   | 104           | 46 | 76  | 6                              |
| Mitchell Creek Lower | 10Z06        | 02-16                   | 32                         | 99                    | 99   | 119           | 69 | 100 | 5                              |
| Mitchell Creek Upper | 10Z07        | 02-16                   | 33                         | 89                    | 86   | 114           | 81 | 96  | 5                              |
| Ross Creek Lower     | 10Z08        | 02-16                   | 29                         | 86                    | 107  | 107           | 56 | 88  | 7                              |
| Ross Creek Upper     | 10Z09        | 02-16                   | 34                         | 107                   | 109  | 122           | 81 | 102 | 5                              |
| Thelma Creek         | 10Z11        | 02-16                   | 0                          | 0                     | 0    | 113           | 0  | 0   | 4                              |





SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 3 - LETHBRIDGE - MEDICINE HAT AREA

|   |                            |                    |
|---|----------------------------|--------------------|
| : | :                          | :                  |
| : | PARAMETER                  | CLASSIFICATION     |
| : | :                          | :                  |
| : | Soil Moisture Conditions   | Wetter than normal |
| : | :                          | :                  |
| : | Winter Precipitation       | Below Normal       |
| : | (November 1 - February 28) | :                  |
| : | :                          | :                  |
| : | Spring Runoff Outlook      | Below Normal       |
| : | :                          | :                  |

ZONE 4 - CALGARY AREA

|   |                            |                    |
|---|----------------------------|--------------------|
| : | :                          | :                  |
| : | PARAMETER                  | CLASSIFICATION     |
| : | :                          | :                  |
| : | Soil Moisture Conditions   | Wetter than normal |
| : | :                          | :                  |
| : | Winter Precipitation       | Below Normal       |
| : | (November 1 - February 28) | :                  |
| : | :                          | :                  |
| : | Spring Runoff Outlook      | Below Normal       |
| : | :                          | :                  |



SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 5 - CORONATION - BROOKS AREA

|   |  |   |                    |
|---|--|---|--------------------|
| : | PARAMETER  | : | CLASSIFICATION     |
| : |  | : |                    |
| : | Soil Moisture Conditions                           | : | Wetter than normal |
| : |  | : |                    |
| : | Winter Precipitation<br>(November 1 - February 28) | : | Below Normal       |
| : |  | : |                    |
| : | Spring Runoff Outlook                              | : | Much Below Normal  |
| : |  | : |                    |

SNOW SURVEY DATA

| Station Name        | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total<br>Years<br>of<br>Record |
|---------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|--------------------------------|
|                     |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                                |
|                     |              |                         |                            |                       |      | Max.          | Min. | Avg. |                                |
| Innisfail (#2) East | 13W05        | 03-02                   | 0                          | 0                     | 0    | 53            | 0    | 20   | 17                             |
| Kneehill Valley     | 13W06        | 03-02                   | 7                          | 13                    | 23   | 99            | 15   | 49   | 12                             |





SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 6 - RED DEER AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |

SNOW SURVEY DATA

| Station Name | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|--------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|              |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|              |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Bentley      | 14W03        | 03-03                   | 11                         | 19                    | 11   | 79            | 7    | 43   | 13                    |
| Dickson      | 14W04        | 03-03                   | 0                          | 0                     | 28   | 97            | 28   | 55   | 13                    |
| Hoadley      | 14W02        | 03-03                   | 5                          | 4                     | 0    | 74            | 0    | 42   | 12                    |
| James River  | 15X10        | 03-03                   | 18                         | 30                    | 63   | 107           | 31   | 63   | 12                    |
| Sundre       | 14X02        | 03-03                   | 5                          | 4                     | 37   | 84            | 6    | 43   | 12                    |



SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 7 - ROCKY MOUNTAIN HOUSE - EDSON AREA

|  |                    |
|--|--------------------|
| PARAMETER  | CLASSIFICATION     |
| Soil Moisture Conditions                           | Wetter than normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |

SNOW SURVEY DATA

| Station Name      | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|-------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|                   |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|                   |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Brazeau Reservoir | 15W01        | 02-24                   | 27                         | 42                    | 54   | 94            | 51   | 73   | 10                    |
| Crimson Lake      | 15W02        | 02-25                   | 13                         | 27                    | 56   | 99            | 8    | 64   | 13                    |
| Edson II          | 16V05        | 02-24                   | 40                         | 67                    | 46   | 155           | 36   | 79   | 17                    |
| Obed              | 17V02        | 02-24                   | 23                         | 39                    | 48   | 165           | 0    | 71   | 12                    |



# SPRING RUNOFF OUTLOOK - MARCH 1987

## ZONE 8 - EDMONTON - LLOYDMINSTER AREA

| PARAMETER  | CLASSIFICATION         |
|--|------------------------|
| Soil Moisture Conditions                           | Wetter than normal     |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal           |
| Spring Runoff Outlook                              | Below Normal to Normal |

## SNOW SURVEY DATA

| Station Name    | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |    |    | Total<br>Years<br>of<br>Record |
|-----------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|----|----|--------------------------------|
|                 |              |                         |                            | 1987                  | 1986 | Prior to 1987 |    |    |                                |
|                 |              | Max.                    | Min.                       |                       |      | Avg.          |    |    |                                |
| Bellis          | 12U01        | 03-03                   | 41                         | 64                    | 85   | 122           | 39 | 74 | 13                             |
| Bruce Snow P.   | 12V02        | 02-27                   | 26                         | 33                    | 75   | 75            | 30 | 57 | 11                             |
| Clandonald      | 10V01        | 03-04                   | 37                         | 62                    | 68   | 122           | 13 | 59 | 13                             |
| Coronation II   | 11W02        | 03-02                   | 23                         | 52                    | 34   | 99            | 13 | 44 | 13                             |
| Elk Island Park | 12V01        | 02-27                   | 33                         | 46                    | 71   | 152           | 28 | 75 | 13                             |
| Gadsby          | 12W01        | 03-02                   | 7                          | 10                    | 19   | 99            | 0  | 38 | 14                             |
| Leduc           | 13V02        | 03-04                   | 7                          | 14                    | 30   | 130           | 30 | 70 | 13                             |
| Lougheed        | 11W03        | 03-02                   | 28                         | 58                    | 47   | 74            | 30 | 52 | 12                             |
| Mannville       | 11V01        | 03-04                   | 20                         | 32                    | 58   | 104           | 30 | 56 | 12                             |
| Morinville      | 13V03        | 03-02                   | 8                          | 13                    | 28   | 130           | 17 | 53 | 13                             |
| Onoway          | 14V02        | 03-04                   | 17                         | 32                    | 33   | 115           | 15 | 58 | 13                             |
| Pipestone Creek | 13V04        | 03-04                   | 7                          | 13                    | 47   | 102           | 18 | 57 | 11                             |
| Saint Paul      | 11V02        | 03-04                   | 20                         | 32                    | 48   | 99            | 13 | 50 | 13                             |
| Two Hills       | 11V03        | 02-27                   | 27                         | 46                    | 48   | 124           | 28 | 58 | 13                             |
| Wainwright      | 10W01        | 03-04                   | 21                         | 52                    | 53   | 65            | 28 | 44 | 11                             |
| Waskatenau      | 12U03        | 03-03                   | 15                         | 30                    | 60   | 117           | 30 | 61 | 13                             |
| Wetaskiwin      | 13W07        | 03-03                   | 10                         | 17                    | 11   | 69            | 0  | 38 | 13                             |





SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 9 - WHITECOURT - ATHABASCA AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |

SNOW SURVEY DATA

| Station Name     | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |    |    | Total Years of Record |
|------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|----|----|-----------------------|
|                  |              |                         |                            | 1987                  | 1986 | Prior to 1987 |    |    |                       |
|                  |              | Max.                    | Min.                       |                       |      | Avg.          |    |    |                       |
| Barrhead North   | 14U07        | 03-02                   | 7                          | 6                     | 29   | 145           | 18 | 56 | 18                    |
| Barrhead West    | 14U08        | 03-03                   | 20                         | 43                    | 23   | 103           | 13 | 56 | 18                    |
| Flatbush         | 14U09        | 03-02                   | 31                         | 54                    | 54   | 131           | 28 | 72 | 18                    |
| Grassland        | 12U02        | 03-03                   | 27                         | 51                    | 46   | 102           | 8  | 53 | 18                    |
| Lodgepole        | 15V04        | 02-24                   | 35                         | 61                    | 49   | 137           | 42 | 84 | 18                    |
| Mayerthorpe S.P. | 15V07        | 03-03                   | 21                         | 39                    | 38   | 114           | 36 | 70 | 8                     |
| Meadowview       | 14U06        | 03-04                   | 21                         | 42                    | 36   | 137           | 30 | 74 | 18                    |
| Perryvale        | 13U05        | 03-03                   | 33                         | 58                    | 59   | 137           | 32 | 67 | 18                    |
| Saulteaux River  | 14T02        | 03-02                   | 39                         | 62                    | 69   | 112           | 38 | 73 | 18                    |
| Twin Lakes       | 14U10        | 03-03                   | 20                         | 31                    | 33   | 94            | 28 | 59 | 8                     |
| Westlock         | 13U03        | 03-02                   | 13                         | 21                    | 18   | 130           | 13 | 56 | 18                    |
| Whitecourt       | 15U06        | 03-03                   | 27                         | 47                    | 41   | 157           | 28 | 79 | 18                    |







# SPRING RUNOFF OUTLOOK - MARCH 1987

## ZONE 10 - COLD LAKE AREA

|  |                   |
|--|-------------------|
| :  | :                 |
| PARAMETER  | CLASSIFICATION    |
| :  | :                 |
| Soil Moisture Conditions                           | Drier than normal |
| :  | :                 |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal      |
| :  | :                 |
| Spring Runoff Outlook                              | Below Normal      |
| :  | :                 |

## SNOW SURVEY DATA

| Station Name | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|--------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|              |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|              |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Bonnyville   | 10U02        | 03-03                   | 41                         | 62                    | 69   | 119           | 35   | 60   | 12                    |





# SPRING RUNOFF OUTLOOK - MARCH 1987

## ZONE 11 - LESSER SLAVE LAKE AREA

| PARAMETER  | CLASSIFICATION |
|--|----------------|
| Soil Moisture Conditions                           | Normal         |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal   |
| Spring Runoff Outlook                              | Below Normal   |

## SNOW SURVEY DATA

| Station Name | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total<br>Years<br>of<br>Record |
|--------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|--------------------------------|
|              |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                                |
|              |              |                         |                            |                       |      | Max.          | Min. | Avg. |                                |
| High Prairie | 16T01        | 03-04                   | 22                         | 47                    | 13   | 132           | 0    | 63   | 13                             |
| Kinuso       | 15T01        | 03-03                   | 30                         | 53                    | 57   | 155           | 23   | 78   | 13                             |



SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 12 - GRANDE PRAIRIE - PEACE RIVER AREA

| PARAMETER  | CLASSIFICATION |
|--|----------------|
| Soil Moisture Conditions                           | Normal         |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal   |
| Spring Runoff Outlook                              | Below Normal   |

SNOW SURVEY DATA

| Station Name    | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|-----------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|                 |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|                 |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Bezanson        | 18T02        | 03-02                   | 15                         | 18                    | 0    | 145           | 0    | 57   | 12                    |
| Eureka River    | 18S01        | 03-02                   | 37                         | 56                    | 65   | 127           | 51   | 74   | 13                    |
| Fairview        | 18S02        | 03-02                   | 22                         | 55                    | 58   | 130           | 22   | 69   | 13                    |
| Girouxville     | 17T01        | 03-04                   | 22                         | 38                    | 22   | 130           | 22   | 61   | 13                    |
| Hythe           | 19T01        | 03-03                   | 21                         | 33                    | 0    | 142           | 0    | 59   | 11                    |
| Little Smoky R. | 17U06        | 03-04                   | 38                         | 70                    | 33   | 141           | 33   | 82   | 11                    |
| N. Star Manning | 17S02        | 03-02                   | 14                         | 22                    | 0    | 86            | 0    | 35   | 12                    |
| Rycroft         | 18T03        | 03-02                   | 12                         | 15                    | 0    | 127           | 0    | 47   | 13                    |
| Sexsmith        | 18T04        | 03-02                   | 27                         | 69                    | 29   | 190           | 29   | 84   | 13                    |
| Spring Creek #1 | 17U02        | 03-02                   | 38                         | 67                    | 75   | 180           | 56   | 111  | 20                    |
| Spring Creek #2 | 17U03        | 03-02                   | 38                         | 67                    | 41   | 166           | 41   | 101  | 20                    |
| Spring Creek #3 | 17U04        | 03-02                   | 44                         | 71                    | 64   | 180           | 46   | 108  | 19                    |
| Spring Creek #4 | 17U05        | 03-02                   | 37                         | 66                    | 71   | 180           | 51   | 111  | 19                    |



## SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 13 - FORT McMURRAY AREA

| PARAMETER  | CLASSIFICATION    |
|--|-------------------|
| Soil Moisture Conditions                           | Drier than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Normal            |
| Spring Runoff Outlook                              | Below Normal      |





SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 14 - WABASCA - FORT CHIPEWYAN AREA

| PARAMETER  | CLASSIFICATION    |
|--|-------------------|
| Soil Moisture Conditions                           | Drier than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Normal            |
| Spring Runoff Outlook                              | Normal            |

SNOW SURVEY DATA

| Station Name     | Station Code | Date of Survey mo-dy | Snow Depth 1987 (cm) | Water Equivalent (mm) |      |               |    |    | Total Years of Record |
|------------------|--------------|----------------------|----------------------|-----------------------|------|---------------|----|----|-----------------------|
|                  |              |                      |                      | 1987                  | 1986 | Prior to 1987 |    |    |                       |
|                  |              | Max.                 | Min.                 |                       |      | Avg.          |    |    |                       |
| Embarras Portage | 11Q01        | 03-02                | 48                   | 76                    | 89   | 102           | 41 | 70 | 10                    |
| Fort Chipewyan   | 11Q02        | 02-25                | 45                   | 53                    | 53   | 122           | 28 | 64 | 10                    |
| Highrock Tower   | 11Q03        | 02-25                | 50                   | 79                    | 66   | 122           | 30 | 69 | 10                    |
| Jackfish Village | 10Q01        | 02-24                | 46                   | 69                    | 53   | 94            | 43 | 66 | 10                    |
| Sweet Grass      | 12Q01        | 03-04                | 59                   | 114                   | 51   | 140           | 36 | 64 | 10                    |



SPRING RUNOFF OUTLOOK - MARCH 1987

ZONE 15 - ZAMA - HAY LAKES AREA

| PARAMETER  | CLASSIFICATION |
|--|----------------|
| Soil Moisture Conditions                           | Normal         |
| Winter Precipitation<br>(November 1 - February 28) | Normal         |
| Spring Runoff Outlook                              | Normal         |

SNOW SURVEY DATA

| Station Name   | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|----------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|                |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|                |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Assumption     | 18Q01        | 03-03                   | 69                         | 109                   | 94   | ---           | ---  | ---  | 2                     |
| Fort Vermilion | 16Q01        | 03-04                   | 56                         | 113                   | 83   | ---           | ---  | ---  | 2                     |
| High Level     | 17Q01        | 03-03                   | 59                         | 116                   | 88   | ---           | ---  | ---  | 2                     |
| Keg River      | 17Q01        | N.A.                    | ---                        | ---                   | ---  | ---           | ---  | ---  | 1                     |

N.A. - not available









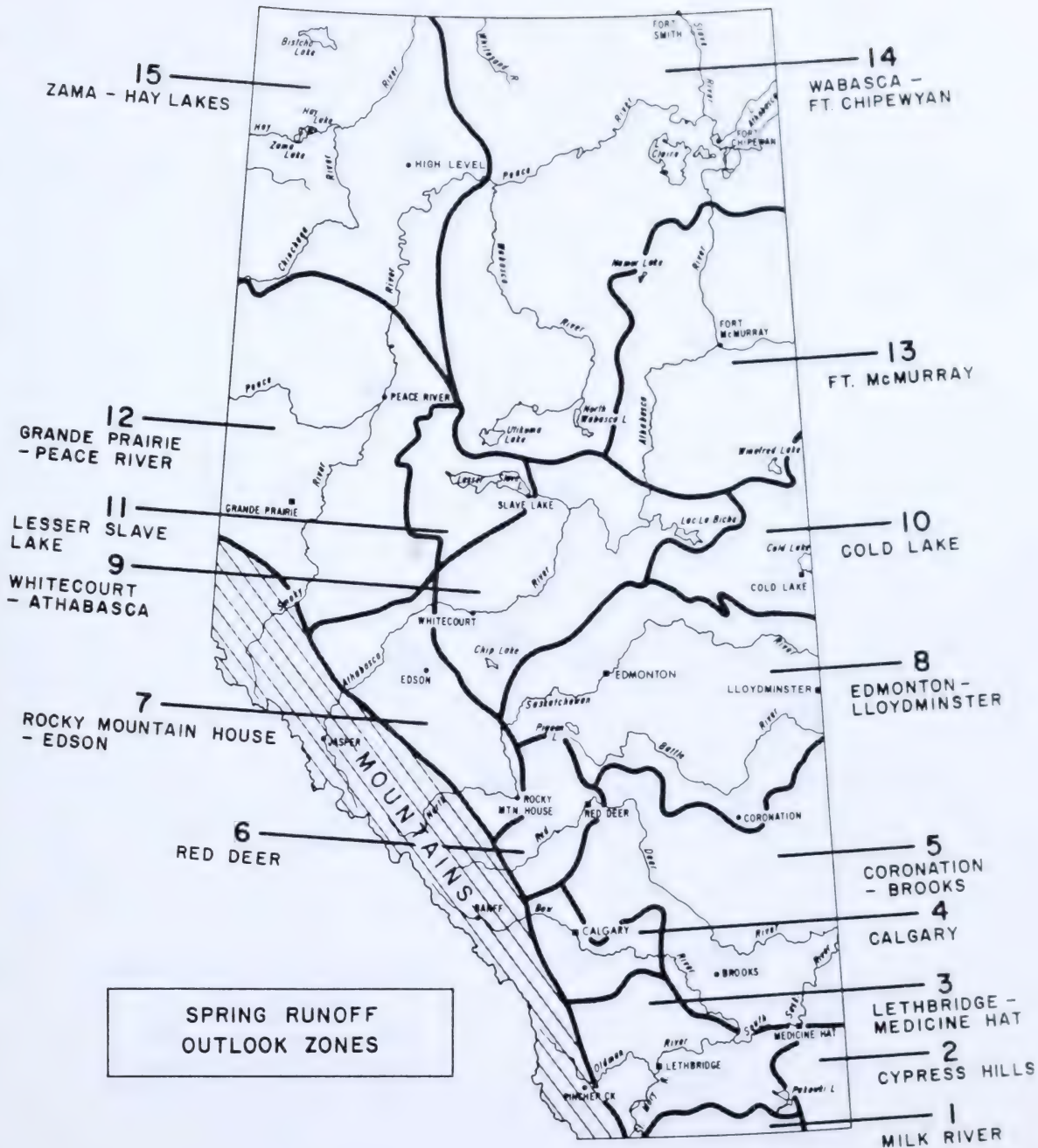
APR - 9 1987

# SPRING RUNOFF OUTLOOK

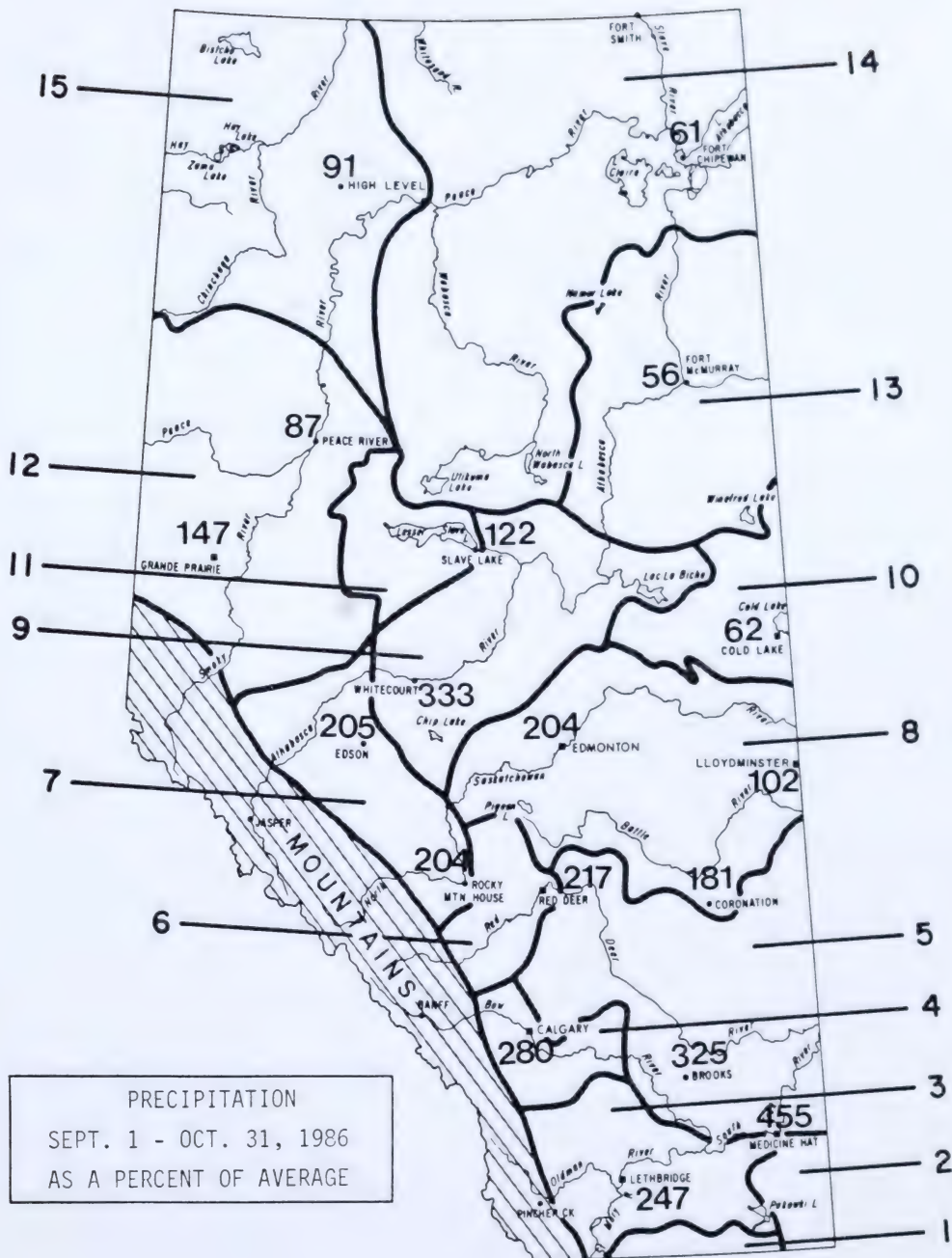
APRIL 1987

prepared by  
the RIVER FORECAST CENTRE  
and  
the SURVEY BRANCH  
TECHNICAL SERVICES DIVISION  
WATER RESOURCES MANAGEMENT SERVICES  
ALBERTA ENVIRONMENT



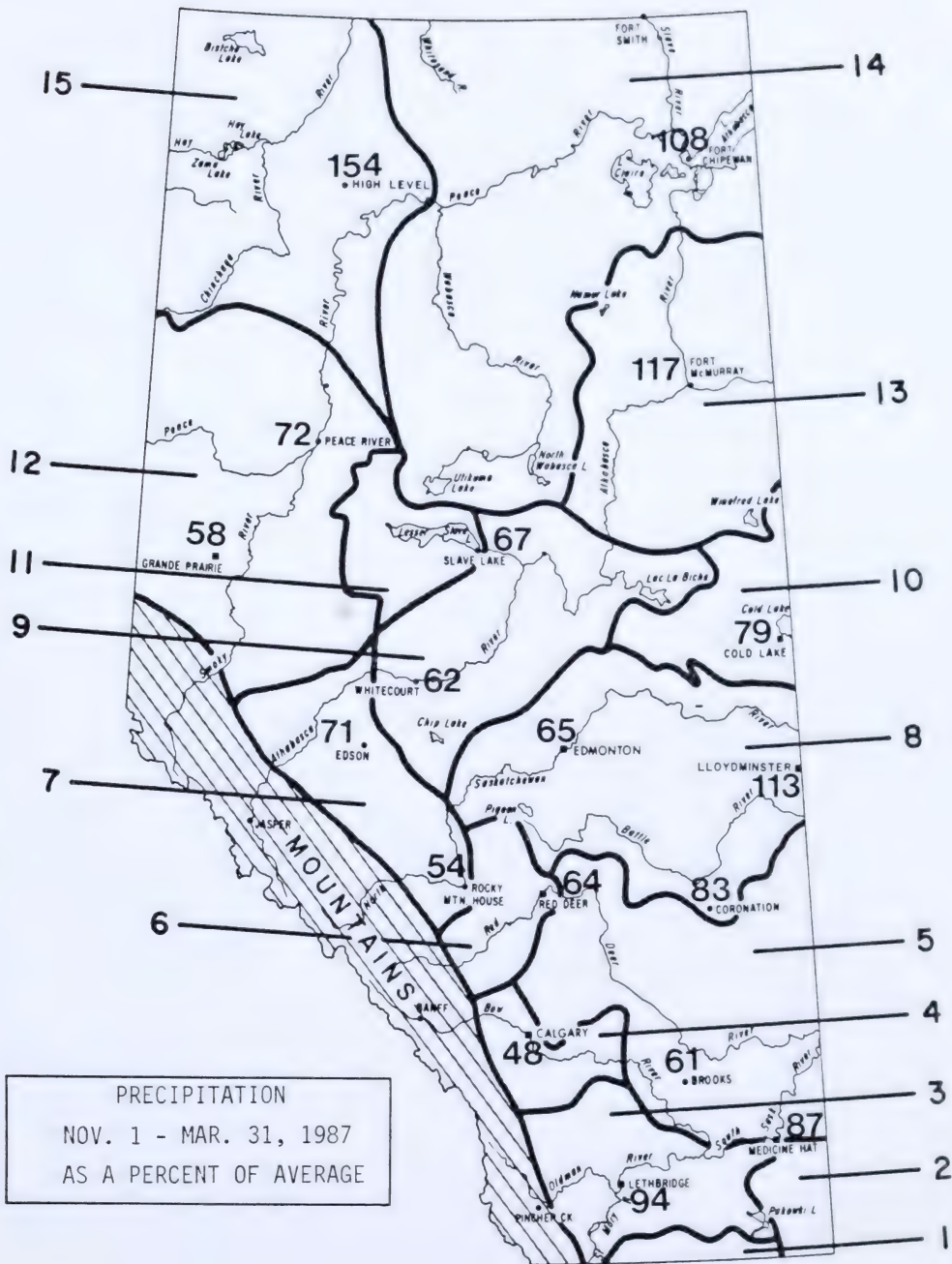




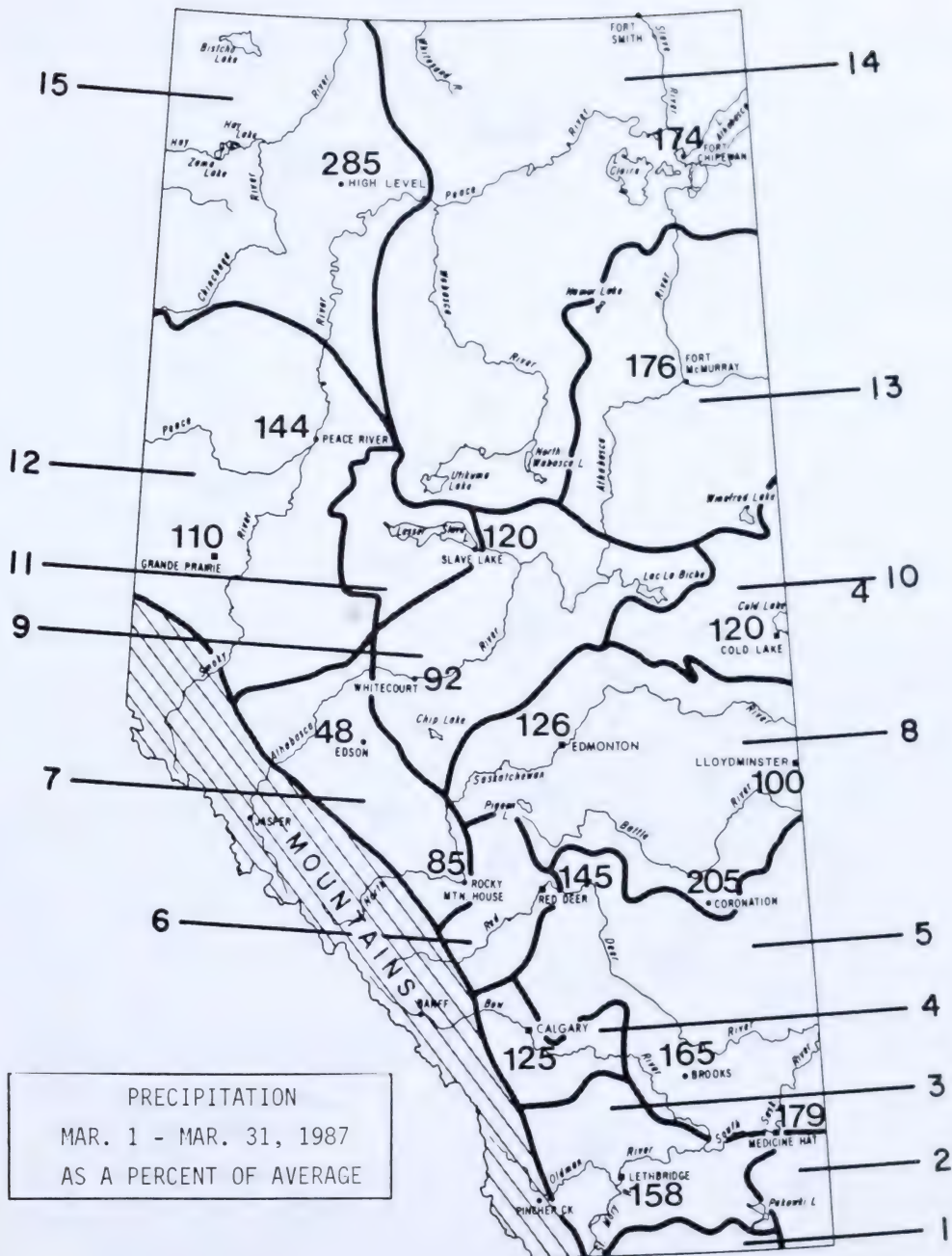






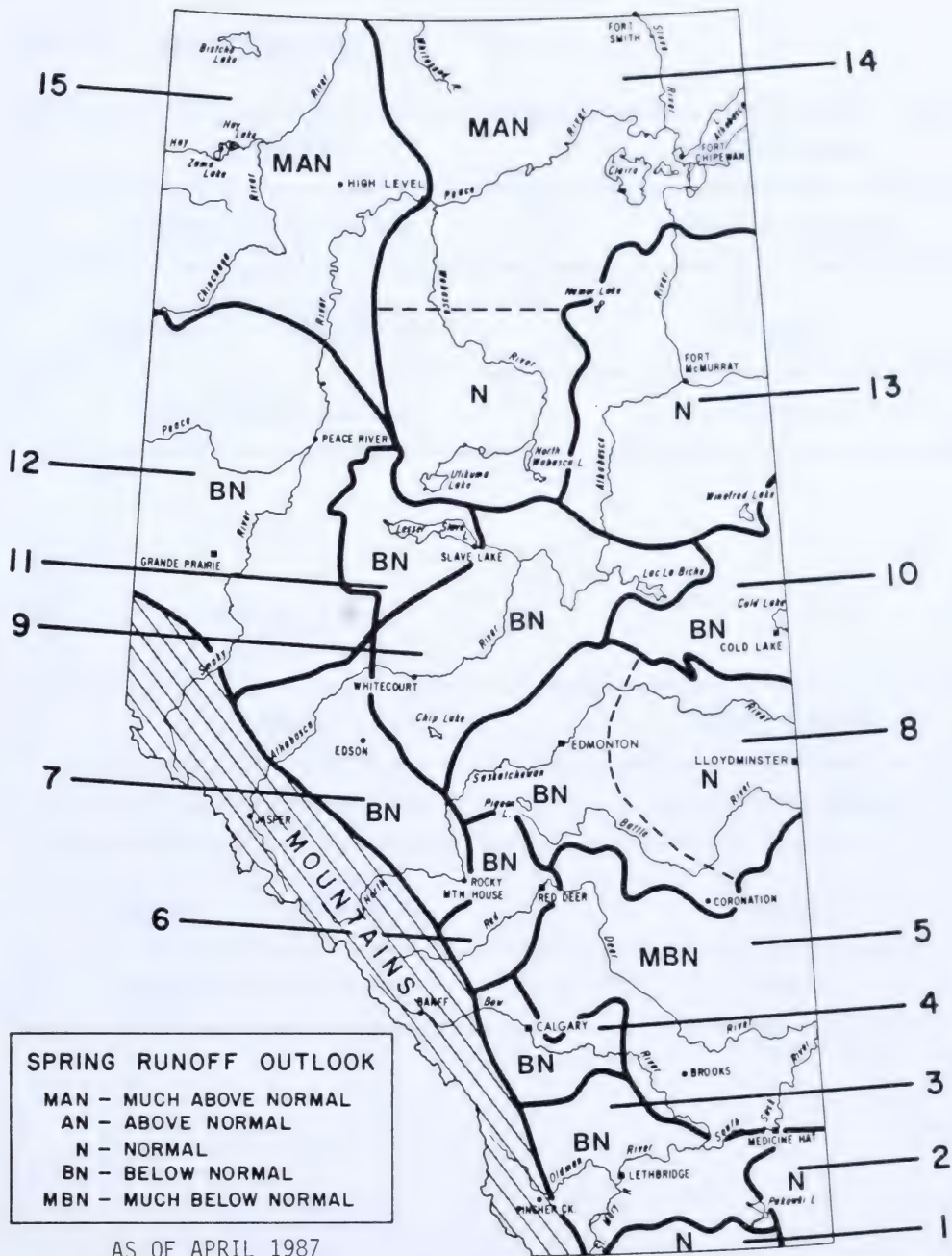
















SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 1 - MILK RIVER AREA

|   |  |                    |
|---|--|--------------------|
| : | :  | :                  |
| : | PARAMETER  | CLASSIFICATION     |
| : | :  | :                  |
| : | Soil Moisture Conditions                           | Wetter than Normal |
| : | :  | :                  |
| : | Winter Precipitation<br>(November 1 - February 28) | Normal             |
| : | :  | :                  |
| : | Spring Runoff Outlook                              | Normal             |
| : | :  | :                  |

ZONE 2 - CYPRESS HILLS AREA

|   |  |                    |
|---|--|--------------------|
| : | :  | :                  |
| : | PARAMETER  | CLASSIFICATION     |
| : | :  | :                  |
| : | Soil Moisture Conditions                           | Wetter than Normal |
| : | :  | :                  |
| : | Winter Precipitation<br>(November 1 - February 28) | Normal             |
| : | :  | :                  |
| : | Spring Runoff Outlook                              | Normal             |
| : | :  | :                  |



SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 3 - LETHBRIDGE - MEDICINE HAT AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Normal             |
| Spring Runoff Outlook                              | Below Normal       |

ZONE 4 - CALGARY AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |



SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 5 - CORONATION - BROOKS AREA

|  |                    |
|--|--------------------|
| PARAMETER  | CLASSIFICATION     |
| Soil Moisture Conditions                           | Wetter than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Much Below Normal  |

SNOW SURVEY DATA

| Station Name        | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|---------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|                     |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|                     |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Innisfail (#2) East | 13W05        | 03-30                   | 8                          | 23                    | 0    | 122           | 0    | 22   | 12                    |
| Kneehill Valley     | 13W06        | 03-30                   | 3                          | 10                    | 0    | 86            | 0    | 32   | 12                    |





# SPRING RUNOFF OUTLOOK - APRIL 1987

## ZONE 6 - RED DEER AREA

|   |  |   |                    |   |
|---|--|---|--------------------|---|
| : | PARAMETER  | : | CLASSIFICATION     | : |
| : |  | : |                    | : |
| : | Soil Moisture Conditions                           | : | Wetter than Normal | : |
| : |  | : |                    | : |
| : | Winter Precipitation<br>(November 1 - February 28) | : | Below Normal       | : |
| : |  | : |                    | : |
| : | Spring Runoff Outlook                              | : | Below Normal       | : |
| : |  | : |                    | : |

## SNOW SURVEY DATA

| Station Name | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total<br>Years<br>of<br>Record |
|--------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|--------------------------------|
|              |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                                |
|              |              |                         |                            |                       |      | Max.          | Min. | Avg. |                                |
| Bentley      | 14W03        | 03-31                   | 0                          | 0                     | 0    | 150           | 0    | 42   | 13                             |
| Dickson      | 14W04        | 03-31                   | 0                          | 0                     | 0    | 112           | 0    | 45   | 13                             |
| Hoadley      | 14W02        | 03-31                   | 0                          | 0                     | 0    | 163           | 0    | 45   | 13                             |
| James River  | 15X10        | 03-31                   | 12                         | 34                    | 26   | 122           | 26   | 78   | 13                             |
| Sundre       | 14X02        | 03-31                   | 0                          | 0                     | 0    | 119           | 0    | 36   | 13                             |



ZONE 7 - ROCKY MOUNTAIN HOUSE - EDSON AREA

|  |                    |
|--|--------------------|
| PARAMETER  | CLASSIFICATION     |
| Soil Moisture Conditions                           | Wetter than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |

SNOW SURVEY DATA

| Station Name      | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|-------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|                   |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|                   |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Brazeau Reservoir | 15W01        | 03-24                   | 22                         | 53                    | 1    | 126           | 0    | 53   | 11                    |
| Crimson Lake      | 15W02        | 03-26                   | 0                          | 0                     | 0    | 122           | 0    | 62   | 13                    |
| Edson II          | 16V05        | 03-24                   | 37                         | 78                    | 32   | 168           | 0    | 64   | 13                    |
| Obed              | 17V02        | 03-24                   | 15                         | 39                    | 4    | 196           | 0    | 70   | 13                    |



ZONE 8 - EDMONTON - LLOYDMINSTER AREA

| PARAMETER  | CLASSIFICATION         |
|--|------------------------|
| Soil Moisture Conditions                           | Wetter than Normal     |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal to Normal |
| Spring Runoff Outlook                              | Below Normal to Normal |

SNOW SURVEY DATA

| Station Name    | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |    |    | Total<br>Years<br>of<br>Record |
|-----------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|----|----|--------------------------------|
|                 |              |                         |                            | 1987                  | 1986 | Prior to 1987 |    |    |                                |
|                 |              | Max.                    | Min.                       |                       |      | Avg.          |    |    |                                |
| Bellis          | 12U01        | 03-31                   | 41                         | 102                   | 74   | 152           | 29 | 82 | 11                             |
| Bruce Snow P.   | 12V02        | 04-01                   | 27                         | 68                    | 47   | 94            | 10 | 64 | 11                             |
| Clandonald      | 10V01        | 04-01                   | 29                         | 71                    | 13   | 168           | 0  | 50 | 13                             |
| Coronation II   | 11W02        | 03-30                   | 15                         | 40                    | 0    | 165           | 0  | 31 | 13                             |
| Elk Island Park | 12V01        | 03-30                   | 37                         | 118                   | 34   | 180           | 0  | 75 | 11                             |
| Gadsby          | 12W01        | 03-30                   | 5                          | 18                    | 0    | 135           | 0  | 17 | 15                             |
| Leduc           | 13V02        | 04-01                   | 0                          | 0                     | 0    | 168           | 0  | 52 | 13                             |
| Lougheed        | 11W03        | 03-30                   | 28                         | 79                    | 0    | 119           | 0  | 44 | 12                             |
| Mannville       | 11V01        | 04-01                   | 19                         | 61                    | 0    | 109           | 0  | 35 | 12                             |
| Morinville      | 13V03        | 03-30                   | 9                          | 26                    | 0    | 170           | 0  | 43 | 12                             |
| Onoway          | 14V02        | 04-01                   | 9                          | 17                    | 0    | 196           | 0  | 40 | 12                             |
| Pipestone Creek | 13V04        | 04-01                   | 3                          | 11                    | 0    | 124           | 0  | 32 | 10                             |
| Saint Paul      | 11V02        | 04-01                   | 20                         | 55                    | 0    | 117           | 0  | 41 | 13                             |
| Two Hills       | 11V03        | 03-30                   | 30                         | 81                    | 0    | 152           | 0  | 49 | 12                             |
| Wainwright      | 10W01        | 04-01                   | 14                         | 52                    | 0    | 150           | 0  | 31 | 12                             |
| Waskatenau      | 12U03        | 03-31                   | 17                         | 48                    | 2    | 147           | 0  | 56 | 12                             |
| Wetaskiwin      | 13W07        | 03-31                   | 6                          | 24                    | 0    | 99            | 0  | 22 | 12                             |





# SPRING RUNOFF OUTLOOK - APRIL 1987

## ZONE 9 - WHITECOURT - ATHABASCA AREA

| PARAMETER  | CLASSIFICATION     |
|--|--------------------|
| Soil Moisture Conditions                           | Wetter than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal       |
| Spring Runoff Outlook                              | Below Normal       |

## SNOW SURVEY DATA

| Station Name     | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |   |    | Total Years of Record |
|------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|---|----|-----------------------|
|                  |              |                         |                            | 1987                  | 1986 | Prior to 1987 |   |    |                       |
|                  |              | Max.                    | Min.                       |                       |      | Avg.          |   |    |                       |
| Barrhead North   | 14U07        | 04-01                   | 3                          | 8                     | 0    | 147           | 0 | 47 | 13                    |
| Barrhead West    | 14U08        | 03-31                   | 17                         | 35                    | 0    | 145           | 0 | 43 | 12                    |
| Flatbush         | 14U09        | 03-30                   | 32                         | 72                    | 22   | 175           | 0 | 66 | 12                    |
| Grassland        | 12U02        | 03-31                   | 23                         | 59                    | 0    | 130           | 0 | 53 | 13                    |
| Lodgepole        | 15V04        | 03-24                   | 37                         | 73                    | 18   | 165           | 0 | 76 | 15                    |
| Mayerthorpe S.P. | 15V07        | 03-31                   | 9                          | 30                    | 8    | 150           | 8 | 66 | 6                     |
| Meadowview       | 14U06        | 04-01                   | 12                         | 36                    | 0    | 160           | 0 | 65 | 14                    |
| Perryvale        | 13U05        | 03-31                   | 26                         | 65                    | 52   | 150           | 0 | 64 | 12                    |
| Saulteaux River  | 14T02        | 03-30                   | 36                         | 79                    | 33   | 198           | 5 | 71 | 12                    |
| Twin Lakes       | 14U10        | 04-01                   | 15                         | 39                    | 8    | 119           | 8 | 50 | 6                     |
| Westlock         | 13U03        | 03-30                   | 10                         | 26                    | 0    | 160           | 0 | 39 | 13                    |
| Whitecourt       | 15U06        | 03-31                   | 22                         | 42                    | 35   | 157           | 0 | 68 | 12                    |



SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 10 - COLD LAKE AREA

|  |                   |
|--|-------------------|
| PARAMETER  | CLASSIFICATION    |
| Soil Moisture Conditions                           | Drier than Normal |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal      |
| Spring Runoff Outlook                              | Below Normal      |

## SNOW SURVEY DATA

| Station Name | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total<br>Years<br>of<br>Record |
|--------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|--------------------------------|
|              |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                                |
|              |              |                         |                            |                       |      | Max.          | Min. | Avg. |                                |
| Bonnyville   | 10U02        | 03-31                   | 38                         | 72                    | 20   | 155           | 0    | 58   | 13                             |



SPRING RUNOFF OUTLOOK - APRIL 1987

## ZONE 11 - LESSER SLAVE LAKE AREA

| PARAMETER  | CLASSIFICATION |
|--|----------------|
| Soil Moisture Conditions                           | Normal         |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal   |
| Spring Runoff Outlook                              | Below Normal   |

## SNOW SURVEY DATA

| Station Name | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|--------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|              |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|              |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| High Prairie | 16T01        | 03-30                   | 17                         | 50                    | 0    | 185           | 0    | 64   | 12                    |
| Kinuso       | 15T01        | 03-31                   | 22                         | 83                    | 107  | 163           | 0    | 80   | 12                    |





SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 12 - GRANDE PRAIRIE - PEACE RIVER AREA

|  |                |
|--|----------------|
| PARAMETER  | CLASSIFICATION |
| Soil Moisture Conditions                           | Normal         |
| Winter Precipitation<br>(November 1 - February 28) | Below Normal   |
| Spring Runoff Outlook                              | Below Normal   |

SNOW SURVEY DATA

| Station Name    | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |   |     | Total Years of Record |
|-----------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|---|-----|-----------------------|
|                 |              |                         |                            | 1987                  | 1986 | Prior to 1987 |   |     |                       |
|                 |              | Max.                    | Min.                       |                       |      | Avg.          |   |     |                       |
| Bezanson        | 18T02        | 03-30                   | 11                         | 36                    | 0    | 193           | 0 | 52  | 12                    |
| Eureka River    | 18S01        | 04-01                   | 29                         | 67                    | 50   | 155           | 0 | 70  | 11                    |
| Fairview        | 18S02        | 04-01                   | 16                         | 55                    | 29   | 112           | 0 | 58  | 11                    |
| Girouxville     | 17T01        | 03-31                   | 14                         | 46                    | 0    | 124           | 0 | 42  | 12                    |
| Hythe           | 19T01        | 04-02                   | 0                          | 0                     | 0    | 173           | 0 | 46  | 12                    |
| Little Smoky R. | 17U06        | 03-30                   | 30                         | 64                    | 0    | 164           | 0 | 66  | 11                    |
| N. Star Manning | 17S02        | 04-01                   | 4                          | 16                    | 0    | 107           | 0 | 40  | 10                    |
| Rycroft         | 18T03        | 04-01                   | 0                          | 0                     | 0    | 155           | 0 | 45  | 11                    |
| Sexsmith        | 18T04        | 04-01                   | 18                         | 46                    | 0    | 218           | 0 | 82  | 11                    |
| Spring Creek #1 | 17U02        | 03-30                   | 30                         | 75                    | 53   | 216           | 0 | 101 | 20                    |
| Spring Creek #2 | 17U03        | 03-30                   | 27                         | 50                    | 0    | 208           | 0 | 83  | 20                    |
| Spring Creek #3 | 17U04        | 03-30                   | 31                         | 75                    | 0    | 216           | 0 | 96  | 20                    |
| Spring Creek #4 | 17U05        | 03-30                   | 30                         | 81                    | 0    | 224           | 0 | 102 | 19                    |



SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 13 - FORT McMURRAY AREA

|   |                            |                   |
|---|----------------------------|-------------------|
| : | :                          | :                 |
| : | PARAMETER                  | CLASSIFICATION    |
| : | :                          | :                 |
| : | Soil Moisture Conditions   | Drier than Normal |
| : | :                          | :                 |
| : | Winter Precipitation       | :                 |
| : | (November 1 - February 28) | Normal            |
| : | :                          | :                 |
| : | Spring Runoff Outlook      | Normal            |
| : | :                          | :                 |



ZONE 14 - WABASCA - FORT CHIPEWYAN AREA

|  |                             |
|--|-----------------------------|
| PARAMETER  | CLASSIFICATION              |
| Soil Moisture Conditions                           | Drier than Normal           |
| Winter Precipitation<br>(November 1 - February 28) | Normal                      |
| Spring Runoff Outlook                              | Normal to Much Above Normal |

SNOW SURVEY DATA

| Station Name     | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |      |      | Total Years of Record |
|------------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|------|------|-----------------------|
|                  |              |                         |                            | 1987                  | 1986 | Prior to 1987 |      |      |                       |
|                  |              |                         |                            |                       |      | Max.          | Min. | Avg. |                       |
| Embarras Portage | 11Q01        | N.A.                    | ---                        | ---                   | 81   | 99            | 38   | 66   | 11                    |
| Fort Chipewyan   | 11Q02        | 03-31                   | 57                         | 145                   | 89   | 127           | 41   | 83   | 14                    |
| Highrock Tower   | 11Q03        | N.A.                    | ---                        | ---                   | 76   | 142           | 38   | 83   | 13                    |
| Jackfish Village | 10Q01        | 04-01                   | 52                         | 155                   | 84   | 104           | 23   | 76   | 13                    |
| Sweet Grass      | 12Q01        | 04-02                   | 60                         | 135                   | 74   | 137           | 28   | 68   | 11                    |





# SPRING RUNOFF OUTLOOK - APRIL 1987

ZONE 15 - ZAMA - HAY LAKES AREA

| PARAMETER  | CLASSIFICATION    |
|--|-------------------|
| Soil Moisture Conditions                           | Normal            |
| Winter Precipitation<br>(November 1 - February 28) | Above Normal      |
| Spring Runoff Outlook                              | Much Above Normal |

## SNOW SURVEY DATA

| Station Name   | Station Code | Date of Survey<br>mo-dy | Snow Depth<br>1987<br>(cm) | Water Equivalent (mm) |      |               |     |     | Total Years of Record |
|----------------|--------------|-------------------------|----------------------------|-----------------------|------|---------------|-----|-----|-----------------------|
|                |              |                         |                            | 1987                  | 1986 | Prior to 1987 |     |     |                       |
| Max.           | Min.         | Avg.                    |                            |                       |      |               |     |     |                       |
| Assumption     | 18Q01        | 03-31                   | 65                         | 124                   | 86   | ---           | --- | --- | 2                     |
| Fort Vermilion | 16Q01        | 04-01                   | 57                         | 116                   | 107  | ---           | --- | --- | 2                     |
| High Level     | 17Q01        | 03-31                   | 61                         | 128                   | 75   | ---           | --- | --- | 2                     |
| Keg River      | 17R01        | 03-31                   | 39                         | 88                    | 39   | ---           | --- | --- | 2                     |

N.A. - not available













